IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

PRINCETON DIGITAL IMAGE   :
CORPORATION,   :
             :
    Plaintiff,   :
             :
v.   :   C.A. No. 13-237-LPS
             :
AMAZON.COM, INC.,   :
             :
    Defendant.   :

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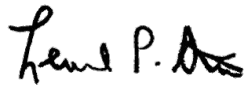
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<u>MEMORANDUM OPINION</u>

January 29, 2019
Wilmington, Delaware

STARK, U.S. District Judge:

Plaintiff Princeton Digital Image Corporation ("Plaintiff") filed suit against Defendant Amazon.com, Inc. ("Defendant") on February 15, 2013, alleging infringement of U.S. Patent No. 4,813,056 (the "'056 Patent"). (D.I. 1) The patent-in-suit relates to encoding techniques for compressing digital data.

Presently before the Court is the issue of claim construction. The parties completed briefing on October 15, 2018. (D.I. 52, 54, 56, 60, 64) The Court held a claim construction hearing on November 29, 2018. (D.I. 72) ("Tr")

I. LEGAL STANDARDS

A. CLAIM CONSTRUCTION

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). "It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation and internal quotation marks omitted). "[T]here is no magic formula or catechism for conducting claim construction." *Id.* at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources "in light of the statutes and policies that inform patent law." *Id.*

"[T]he words of a claim are generally given their ordinary and customary meaning. . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (internal citations and quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). The patent "specification is always highly relevant to the

claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While "the claims themselves provide substantial guidance as to the meaning of particular claim terms," the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . . [b]ecause claim terms are normally used consistently throughout the patent." *Id.* (internal citation omitted).

It is likewise true that "[d]ifferences among claims can also be a useful guide . . . . For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15 (internal citation omitted). This "presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that "the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316. It bears emphasis that "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)) (alteration in original) (internal quotation marks omitted).

In addition to the specification, a court "should also consider the patent's prosecution history, if it is in evidence." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). The prosecution history, which is "intrinsic evidence," "consists of the complete record of the proceedings before the [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

"In some cases, . . . the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period." *Teva*, 135 S. Ct. at 841. "Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries "endeavor to collect the accepted meanings of terms used in various fields of science and technology." *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Id.* Nonetheless, courts must not lose sight of the fact that "expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Id.* Overall, while extrinsic evidence "may be useful to the court," it is "less reliable" than intrinsic evidence, and its consideration "is

unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (quoting *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996)).

B.   INDEFINITENESS

A patent claim is indefinite if, "viewed in light of the specification and prosecution history, [it fails to] inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). A claim may be indefinite if the patent does not convey with reasonable certainty how to measure a claimed feature. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1341 (Fed. Cir. 2015). But "[i]f such an understanding of how to measure the claimed [feature] was within the scope of knowledge possessed by one of ordinary skill in the art, there is no requirement for the specification to identify a particular measurement technique." *Ethicon Endo-Surgery, Inc. v. Covidien, Inc.*, 796 F.3d 1312, 1319 (Fed. Cir. 2015).

II.   CONSTRUCTION OF DISPUTED TERMS[1]

A.   "Group" and "Grouping"[2]

Plaintiff
n. an identifiable set of codewords based on conditions or values v. identifying a set of codewords based on conditions or values
Defendant
no construction necessary, but if necessary: n. set of codewords organized together based on the encoding technique used v. organizing codewords into a set based on the encoding technique used
Court
n. a plurality of codewords associated with one another by some unifying relationship v. the act or process of organizing into groups

The parties agree that the terms should be given their plain and ordinary meanings (Tr. at 5, 9) but, in the alternative, propose competing constructions (D.I. 52 at 5; D.I. 54 at 7). Given that the terms are used in their ordinary manner, the Court sees no reason to define the terms in any way other than their plain and ordinary meanings. However, the Court's definition specifically references "codewords" because it is undisputed that it is the codewords that are grouped, as opposed to signals or signal conditions. (*See* D.I. 52 at 5; D.I. 54 at 7)

B.   "codeword"[3]

Plaintiff
No construction needed, but if needed: a digital value representation of a specific signal
Defendant
A fundamental encoding unit that represents a signal condition
Court
a digital value representation of a specific signal value or condition, wherein a codeword is not a concatenation of other codewords

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[1]The Court will also adopt the parties' agreed-upon constructions.

[2]These terms appear in claims 18-21 and 23 of the '056 Patent.

[3]This term appears in claims 18, 19 and 21 of the '056 Patent.

At the onset, the Court sees no reason to introduce the vague language proposed by Defendant – "[a] fundamental encoding unit" – since "a digital value representation" accurately reflects the fact that the '056 Patent discusses using binary values for codewords. *See* '056 Patent, col. 1 ll. 1-2 ("This invention relates to encoders for encoding ***digital*** signals") (emphasis added); Tables I-V (showing all codewords comprise binary values of 0s and 1s). Further, the parties agreed at oral argument that each codeword represents a different signal condition or value, rather than "a specific signal," as Plaintiff had initially proposed. (Tr. at 23, 29) Thus, the Court construes the term, in part, to mean "a digital value representation of a specific signal value or condition."

Such a construction has two implications. First, one codeword cannot refer to multiple signal conditions or values. *See* '056 Patent, col. 2 ll. 18-20 (stating that one prior art problem was "use [of] identical codewords representing different information signals"); col. 2 ll. 61-65 ("According to the present invention . . . each codeword represents a different signal condition in an information signal."). Second, neither a "keyword" (or "prefix"), nor a "suffix codeword segment," alone constitutes a "codeword" because these do not represent a signal condition or value; only the combined keyword/prefix and suffix represent a specific signal condition or value. *See id.* at col. 3 ll. 10-15 ("Each codeword . . . may include the key codeword as a prefix codeword segment followed by a suffix codeword segment.").

The parties also agreed at oral argument that a codeword cannot be a concatenation of two other codewords, provided that "concatenation" is defined as the combination of two or more codewords to make up the ***entirety*** of another codeword. (Tr. at 41-42) For instance, a prohibition on concatenations means that if signal condition A is represented by 00 and signal condition B is represented by 11, signal condition C could not be assigned the codeword 0011,

because the *entirety* of the codeword for C would comprise a "concatenation" of two other

codewords. A decoder would be unable to determine whether 0011 refers to A and B, or C. *See*

'056 Patent, col. 2 ll. 61-65 ("According to the present invention . . . each codeword represents a

different signal condition in an information signal.").

This does not mean, however, that two or more codewords cannot make up *some part* of

another codeword. In fact, the specification explicitly teaches that this is permissible. For

example, Table IV shows one codeword in the second group consists of 01011 100000, wherein

01011 is the keyword/prefix and 100000 is the suffix codeword segment. *Id.* at col. 7 l. 66. Yet

the suffix codeword segment 100000 is a combination of the same digits as two of the codewords

from the first group: 1000 (representing non-zero value "12") and 00 (representing non-zero

value "-7"). *Id.* at col. 8, ll. 21-24. This combination of codewords from the first group to make

up *some part* of a codeword in the second group does not amount to a "concatenation," however,

because the combination of 1000 and 00 does not make up the *entirety* of another codeword.

The presence of the additional keyword/prefix (that is not itself another codeword) makes this

combination permissible.

C. "a second group of different codewords"[4]

Plaintiff
a second set of codewords that are not the same as the codewords of the first group of codewords
Defendant
a second group of codewords that are different than and not combinations of codewords in the first group
Court
a second group of codewords that are not the same as, and not concatenations of, the codewords in the first group

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[4]This term appears in claim 18 of the '056 Patent.

The parties agreed at oral argument that the only dispute is whether the second group of codewords may comprise concatenations of the first group of codewords. (Tr. at 36-37) Ultimately, the parties also agreed on the construction adopted by the Court, contingent on the definition of "concatenation," which the Court has now adopted. (Tr. at 42)

D. "codeword portion," "codeword portion length," and "codeword portion of a length"[5]

Plaintiff no construction needed, but if needed: length of a portion of a codeword
Defendant codeword portion: part of a codeword that indicates that what follows is a suffix, not a standalone codeword codeword portion length: number of bits in the codeword portion
Court codeword portion: part of a codeword that indicates that what follows is a suffix, and the suffix itself is not a standalone codeword codeword portion (of a) length: number of bits of the codeword portion.

At oral argument, the parties agreed on the construction now adopted by the Court. (Tr. at 43-44 (agreeing on construction of "length"); 45-46 (agreeing on construction of "codeword portion"))

E. "condition[s]," "signal condition[s]," "value[s]," and "signal value"[6]

Plaintiff condition: state or value signal condition: state or value of a signal
Defendant condition/value/signal condition/signal value: state of the signal represented by a single codeword

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[5]"[C]odeword portion" appears in claims 18 and 21, "codeword portion length" appears in claim 18, and "codeword portion of a length" appears in claim 21 of the '056 Patent.

[6]These terms appear in claims 18 and 21 of the '056 Patent.

Court
Condition/value: state or value signal condition/value: state or value of a signal

The parties agree that these terms are used interchangeably, but disagree as to whether they refer to a portion of the signal represented by a single codeword. The Court is not persuaded by Defendant to read in an additional limitation that each condition/signal condition/value/signal value must be represented by only one codeword.[7] The specification explicitly defines the terms "value" and "condition" as "represent[ing] different conditions or states of the signal," adding that "'value' or 'condition' can represent zero or non-zero values, or run length magnitudes or, for example, different zero or non-zero run lengths or other conditions manifested by a given signal." '056 Patent, col. 18 ll. 14-19.

F. "memory means"[8]

Plaintiff
not means-plus-function; plain and ordinary meaning
Defendant
Means-plus-function Function: outputting a codeword corresponding to the input digitized signal condition Corresponding structure: ROM

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[7]During oral argument, Plaintiff theorized that under its construction, one signal condition may be represented by more than one codeword due to an "artifact" in the system. (Tr. at 46-47, 51-52) Defendant's construction attempts to avoid this possibility by requiring an exact one-to-one relationship between each signal condition and each codeword. But the possibility of multiple codewords representing one signal condition is not forbidden by the specification and does not impact the Court's construction. Even if such "artifacts" exist, it appears that an encoder as taught by the '056 Patent would only associate the signal condition to the first-occurring codeword, and a decoder would handle the potential plurality of codewords by using the lookup table stored in ROM to output one signal condition.

[8]This term appears in claim 18 of the '056 Patent.

> **Court**
> Means-plus-function
>
> Function: outputting a codeword corresponding to the input digitized signal condition
>
> Corresponding structure: ROM

The parties dispute whether the term "memory means" constitutes a means-plus-function limitation. A claim limitation may be recited in terms of a particular function to be performed, rather than the structure, material, or acts for performing that function. *See* 35 U.S.C. § 112, ¶ 6. Generally, "the use of the word 'means' in a claim element creates a rebuttable presumption that § 112, [¶] 6 applies." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Where the patentees avail themselves of this means-plus-function claiming technique, the claim element "shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6; *see also Williamson*, 792 F.3d at 1347. "The duty to link or associate structure to a claimed function is the quid pro quo for the convenience of employing the means-plus-function claiming technique of § 112, ¶ 6." *Intel Corp. v. Broadcom Corp.*, 172 F. Supp. 2d 515, 528 (D. Del. 2001) (citing *B. Braun Medical Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)).

Plaintiff argues that this dispute has already been resolved, as the Federal Circuit in *TecSec, Inc. v. International Business Machines Corp.*, 731 F.3d 1336 (Fed. Cir. 2013), concluded that "memory means" is not a means-plus-function limitation. (D.I. 56 at 12) (citing *TecSec*) But *TecSec* does not provide the determinative construction of "memory means" for all cases.

In *TecSec*, the Federal Circuit found the term "system memory means for storing data" not to be a means-plus-function limitation where the claims recited sufficient structure to perform the generic function of "storing data." *TecSec*, 731 F.3d at 1347. By contrast, in

Chicago Board Options Exchange v. International Securities Exchange, the parties failed to overcome the presumption that "system memory means" was a means-plus-function limitation. *See Tec Sec*, 731 F.3d at 1347-48 (citing *Chicago Board*, 677 F.3d 1361, 1367 n.1 (Fed. Cir. 2012)). The *TecSec* Court distinguished *Chicago Board* because the "system memory means" at issue in *Chicago Board* was associated with the "more specific function" of "'stor[ing] allocating parameters for allocating trades between the incoming order or quotation and the previously received orders and quotations.'" *TecSec,* 731 F.3d at 1348 (quoting *Chicago Board,* 677 F.3d at 1365).

The claims presently before the Court more closely resemble those in *Chicago Board* than those in *TecSec*. Specifically, the "memory means" of claim 18 does more than merely "store data;" it performs the specific function of "output[ting a] codeword corresponding to [an] input digitized signal condition." '056 Patent, col. 21 ll. 42-45. "Memory means" is not sufficient structure to perform the specific associated function. Here, then, in the Court's view, Plaintiff has failed to overcome the presumption that "memory means" is a means-plus-function limitation.

As for the associated structure, the '056 Patent repeatedly and exclusively refers to read-only memory (ROM) having a stored lookup table. *Id.* at col. 6 ll. 3-19. The specification teaches that direct processing of the signal condition causes the memory means to output the associated codeword; there is no other intervening processing, addressing, or command structure. *Id*. at Fig. 2; col. 6 ll. 3-19; col. 11 l. 18-col. 13 l. 52. Plaintiff does not dispute that ROM is the only structure disclosed in the specification, and makes no substantial argument as to equivalence of other structures.[9] The Court concludes that the only associated structure is ROM.

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[9]The Court does not agree, however, that floppy disks could not perform the function.

G. "codewords representing more/most likely to occur run lengths of zero values and non-zero values"[10]

Plaintiff
codewords represent sequences of both consecutive zero values and non-zero signal values that are more/most likely to occur, with no further restriction on the non-zero signal after such sequence.
Defendant
codewords representing only more/most likely to occur runs of zero values and codewords representing only non-zero values
Court
codewords representing more/most likely to occur: (i) runs of only zero values, and (ii) non-zero values

In a joint surreply brief, the parties dispute whether claims 20 and 23 are limited to the preferred embodiment disclosed in the specification, in which codewords represent either: (i) a run of zero values or (ii) a non-zero value, and not a run of non-zero values or a combination of zero and non-zero values. (*See* D.I. 64 at 1) Plaintiff argues that the claims permit a single codeword to represent any combination of zero and non-zero values (e.g., a single codeword could be assigned for the signal condition "0,0,0,2"), whereas the preferred embodiment would require two separate codewords (one for the zero run length "0,0,0" and one for the non-zero value, "2"). Plaintiff relies on the definition of "value" – defined as "represent[ing] zero or non-zero values, or run length magnitudes or, for example, *different zero or non-zero run lengths* or *other conditions manifested by a given signal*," '056 Patent, col. 18 ll. 14-19 (emphasis added) – and the term "comprising" to support its interpretation. (D.I. 64 at 2-4) Defendant counters that the disputed term has more limited scope because the patent envisions only encoding zero run lengths separately from individual non-zero values, and the circuit shown in

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[10]This term appears in claim 20 and 23 of the '056 Patent.

Figure 2 would be incapable of encoding the signals as Plaintiff interprets the claim. (D.I. 64 at 6-8)

Plaintiff correctly notes that claims are not necessarily restricted to the embodiments disclosed in the specification. *See Phillips*, 415 F.3d at 1323 ("[W]e have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."). However, "[i]t is often the case that different claims are directed to and cover different disclosed embodiments. The patentee chooses the language and accordingly the scope of his claims." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1383 (Fed. Cir. 2008).

In this case, claims 20 and 23 are directed to the preferred embodiment. The specification discusses at length that all non-zero values and certain zero run lengths (runs having 0-35 or 240 zeros) occur more frequently than other zero run lengths (runs having 36-239 zeros). *See* '056 Patent, Table V, col. 8 l. 15-col. 9 l. 35; col. 9 l. 56-col. 10 l. 13. The use of nearly identical language in the specification and these two claims demonstrates that claims 20 and 23 capture only the preferred embodiments. While one or more independent claims may reach the embodiments of codewords representing a mix of zero run lengths and non-zero values, these two claims do not.

H. "codewords representing less likely to occur zero run length values"[11]

Plaintiff
codewords represent sequences of consecutive zero values that are less likely to occur, with no further restriction on the signal after such sequence
Defendant
codewords representing only less likely to occur runs of zero values
Court
codewords representing less likely to occur runs of only zero values

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[11]This term appears in claim 20 and 23 of the '056 Patent.

For the reasons discussed in Section G above, the Court construes the terms in a manner reflecting that these claims are limited to the preferred embodiments.

I. "generally" terms

1. **"at least generally the shortest codeword length manifests that signal condition having the greatest probability of occurrence and at least generally the greatest codeword length manifests that signal condition having the lowest probability of occurrence"[12]**

2. **"wherein the shorter codewords generally occur more frequently and the longer codewords generally occur less frequently"[13]**

Plaintiff Not indefinite; plain and ordinary meaning, but if construction needed: the encoding includes a rule such that the values that statistically have the greatest probability of occurrence are encoded with the shortest codewords, and values in that group that are statistically less commonly occurring are encoded with longer codewords
Defendant Indefinite
Court Not indefinite each signal condition is: (1) associated to a pre-determined relative expected probability of occurrence of the signal condition based on a statistical analysis; and (2) assigned a codeword having a length inversely proportional to the expected probability of occurrence of the signal condition.

Both before and after *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014), the Federal Circuit has affirmed finings of definiteness with respect to terms of degree. *See, e.g.*, *Sonix Tech. Co., Ltd. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017) ("Because language is limited, we have rejected the proposition that claims involving terms of degree are inherently indefinite."); *Apple, Inc. v. Samsung Elec. Co., Ltd.*, 786 F.3d 983, 1002-03 (Fed. Cir. 2015) (finding "substantially centered" not indefinite); *Am. Container, Inc. v.*

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[12]This term appears in claim 18 of the '056 Patent.

[13]This term appears in claim 21 of the '056 Patent.

Plastipak Packaging, Inc., 415 F.3d 1335, 1346 (Fed. Cir. 2005) ("[T]erms of approximation

such as 'generally' need not be construed with mathematical precision.").

Defendant's main argument is that the claims' use of the word "generally" leaves a

person of ordinary skill in the art questioning how much variance is permitted. (D.I. 52 at 17)

However, as Plaintiff's expert, Dr. Kia, explains, when the claims are read in light of the

specification, it is evident that "generally" accounts for the variations that occur between the

expected results based on a statistical model and the actual results when assigning/organizing

inputs pursuant to that model. (D.I. 57 at ¶¶ 72-73, 79-80) Variation may occur when a given

signal condition has a probability of occurrence in a particular signal that is different from the

expected probability of occurrence in the model. (D.I. 57 at ¶ 80) In sum, the use of "generally"

accounts for the possible variation between different models, or variations between an expected

probability of occurrence in the model and its true probability of occurrence in any given signal.

J. "said first given order codeword length"[14]

Plaintiff
Not indefinite; plain and ordinary meaning, but if construction needed: the order of the first group of said codewords being organized by their length statistically in which at least generally the shortest codeword length manifests that signal condition having the greatest probability of occurrence and at least generally the greatest codeword length manifests that signal condition having the lowest probability of occurrence
Defendant
Indefinite
Court
Not indefinite
the statistical order of the first group of said codewords being organized based on their length

Defendant argues that the claim term is indefinite because it refers to a "first given order

codeword ***length***" but the first group contains multiple codewords, so there is no one clear

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[14]This term appears in claim 18 of the '056 Patent.

"length." (D.I. 52 at 19) Defendant further contends that even if the problem here arises from a drafting error, the Court cannot redraft the claims to make them operable or sustain their validity. (*Id.*) (citing *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004))

The Court is not persuaded that the claim is indefinite merely because it includes the term "length." Generally – and here – a district court may only correct an "obvious minor typographical [or] clerical" error in a patent if (1) "the correction is not subject to reasonable debate based on consideration of the claim language and the specification" and (2) "the prosecution history does not suggest a different interpretation of the claims." *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003); *see also Superior Fireplace Co. v. Majestic Prods. Co.*, 270 F.3d 1358, 1370 (Fed. Cir. 2001).

In this case, Claim 18 includes "a first group of said codewords being organized statistically in ***a first given order*** . . . ." '056 Patent, col. 21 ll. 24-26 (emphasis added). The claim then notes "a second group of different codewords" that are "organized statistically with ***said first given order codeword length*** . . . ." *Id.* at col. 21 ll. 32-37 (emphasis added). The word "length" creates an ambiguity: "first given order codeword length" may be an independent limitation, but one lacking proper antecedent basis, or "***said*** first given order codeword length" refers to the preceding recitation of "***a*** first given order," adding the word "length" either in error or for some descriptive purpose.

Despite this ambiguity, the meaning of the claim itself is not subject to reasonable debate. Reading the claim in light of the specification, the Court finds no support for the first interpretation: that "first given order codeword length" was intended to be an independent limitation. The specification and surrounding claims make no reference to a "first given order codeword length," and use of the antecedent "said" strongly suggests the term is referring to the

prior recitation of "a first given order." For these reasons, a person of ordinary skill in the art would conclude that "length" was included in error.

Such a person of ordinary skill would also conclude that the correction to the claim's error is not subject to reasonable debate. The term refers to the statistical order of the first group of said codewords being organized based on their length. This is explicitly depicted in Table V, *id.* at col. 8 ll. 15-69, which shows that the keyword (representing the prefix portion of the second group of codewords) is organized based on its length into the statistical order of the first group of codewords, "regardless [of] the relative codeword lengths of said second group." *Id.* at col. 21 ll. 38-40. As Dr. Kia puts it, "this is where the entire second group would stand in the 'first order' if the entire second group was represented by a single codeword." (D.I. 57 at 33) Defendant's expert, Dr. Acton, does not dispute this interpretation. (*See* D.I. 53 at 23 n. 2) ("Though written incorrectly, this appears to be a reference to the fact that the length of the prefix portion of the codewords in the second group is based upon where the combined probability of the second group falls within the probabilities of the codewords/conditions in the first group.") For these reasons, the Court concludes that there is an obvious and correctable error in the claim – the inclusion of the word "length" – the construction of which is not subject to reasonable debate. Thus, the claim is not indefinite. *See CBT Flint Partners, LLC v. Return Path, Inc.*, 654 F.3d 1353, 1356-58 (Fed. Cir. 2011) (finding an obvious and correctable error in the claim, the construction of which is not subject to reasonable debate, despite three possible interpretations of error).

K. "significantly smaller than the combined probability of occurrence of all the signal values represented by the first group"[15]

Plaintiff
Not indefinite; plain and ordinary meaning, but if construction needed: the encoding includes a statistical coding rule or procedure such that the combined probability value of the second group is statistically less probable than the probability of occurrence of the first group
Defendant
Indefinite
Court
Indefinite

Defendant argues that the claim term is indefinite because there are no bounds as to what constitutes "significantly smaller." (D.I. 52 at 20) ("Is 49% significantly smaller than 51%? Is 49.99% significantly smaller than 50.01%?") Plaintiff responds that the claim is not indefinite because the specification discloses an embodiment in which the codewords of the second group have a combined probability of occurrence of 15% of all the zero run length codewords (such that all zero run length codewords in the first group together have an 85% probability of occurrence), and that this description sets forth the bounds of the claim. (D.I. 56 at 19)

The Court must look to the claims and specification to determine whether a skilled artisan would have sufficient guidance in understanding the bounds of the claims. *See Sonix Tech.*, 844 F.3d at 1377-78 (distinguishing definite claim term "not interfering substantially" from indefinite claim term "aesthetically pleasing" based on relative guidance provided by respective specifications). While claim terms need not be defined by explicit numerical bounds, claims must nonetheless be sufficiently definite to one of ordinary skill in the art. *See, e.g., id.*; *Apple*, 786 F.3d at 1002-03; *Aventis Pharm. Inc. v. Amino Chemicals Ltd.*, 715 F.3d 1363, 1377 (Fed. Cir. 2013); *Am. Container*, 415 F.3d at 1346.

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[15]This term appears in claim 19 of the '056 Patent.

Here, Defendant has proven by clear and convincing evidence that the claim term is indefinite. The 85/15 example on which Plaintiff relies is unavailing. As Dr. Acton points out, the 85/15 ratio does not refer to the ratio between the first and second group, but rather the relative combined probabilities of *only the zero run lengths*. (D.I. 53 at ¶ 116) The first group comprises both non-zero values and the more common zero run lengths, and does not account for the at least 16 non-zero values that also make up the first group. '056 Patent, col. 6 l. 39-col. 7 l. 6; col. 8 l. 15-col. 9 l. 17. Factoring in these non-zero values results in some indeterminate[16] combined probability of occurrence of less than 15% for the second group. (D.I. 53 at ¶ 116) Nothing in the specification suggests that a person of ordinary skill in the art would view the 85/15 example as providing sufficient guidance to reasonably ascertain the scope of the claim.

III.   CONCLUSION

The Court will construe the disputed terms as explained above. An appropriate Order follows.

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[16]As Dr. Acton notes, the specification never discusses the absolute probabilities of the non-zero values, but rather provides only the general ranking of the probabilities of occurrence of the non-zero values relative to the zero run lengths. (D.I. 53 at ¶ 117)